

## WHAT IS CLAIMED IS

1. An integrated IP network telephone distributor with switching and routing functions, comprising:

at least one network interface for receiving and transmitting  
5 network packets;

a memory device for storing a package token lookup table and a package class lookup table;

10 a packet classifying device for comparing the network packet received by the at least one network interface with the package token lookup table and the packet class lookup table in the memory device to determine whether the received network packet is a voice package or a data package, the packet classifying device including an unpacketizing circuit, a token comparison circuit, a packet classifying circuit, and a switching and packetizing circuit, the unpacketizing circuit serving for  
15 dividing a network packet into a network packet header and a network packet data, the network packet data being stored in the memory device, the network packet header being sent to the token comparison circuit for performing a comparison process, the packet classifying circuit receiving comparison result from the token comparison circuit  
20 for being compared with the packet class lookup table stored in the memory device for determining a class of the network packet, the switching and packetizing circuit performing switching and packetizing processes based on the class of the packet, wherein if the

packet is a voice packet, the network packet data in the memory device is read and sent to the voice processing circuit, and if the network packet is a data package, the network packet data in the memory device is read and combined with the network packet header  
5 to form a network packet for being transferred to a connected computer through the at least one network interface; and

a voice processing circuit for transforming the voice packet into voice signals for output.

10 2. The integrated IP network telephone distributor with switching and routing functions as claimed in claim 1, wherein the packet classifying device has a token division circuit for taking out fields capable of being used for classifying in the network packet header, each field being used as a token, and the tokens are arranged sequentially as a sequence for being sent to the token comparison  
15 circuit.

3. The integrated IP network telephone distributor with switching and routing functions as claimed in claim 1, wherein the token comparison circuit compares the received tokens with the token lookup table in the memory device, and transfers a comparison result  
20 to the packet classifying circuit.

4. The integrated IP network telephone distributor with switching and routing functions as claimed in claim 1, wherein the

switching and packetizing circuit reserves a transmission bandwidth of 64Kbps for assuring a connection quality for voice communication.

5     5. The integrated IP network telephone distributor with switching and routing functions as claimed in claim 1, wherein the at least one network interface has a corresponding connecting port for connecting to a network and at least one computer.

10     6. The integrated IP network telephone distributor with switching and routing functions as claimed in claim 1, wherein the packet classifying device is implemented by application specific integrated circuit (ASIC).

7. The integrated IP network telephone distributor with switching and routing functions as claimed in claim 5, wherein the at least one computer requires only one IP address.

15     8. The integrated IP network telephone distributor with switching and routing functions as claimed in claim 1, wherein the packet classifying device classifies the package data of the at least one computer by using tokens in the network packet.